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et-Loire, Nièvre, Hautes-Pyrénées, Seine-et-Oise, Puy-de-Dôme, Vaucluse, Cher and Allier. In all these departments, with the exception of Puy-de-Dôme and Allier, the excess of deaths in 1921 was greater than in 1920; three of these departments, Maine-et-Loire, Seine-et-Oise and Cher, had shown an excess of births over deaths in 1920.

In 1920 (the figures for 1921 are not as yet available), Germany, exclusive of Wurttemberg and Mecklenburg, showed an excess of births over deaths amounting to 623,367; in 1919, the excess of births was 282,230, and in 1918 there was an excess of deaths over births of 299,885. In England, the excess of births for 1920 was 491,781, and for 1921, 390,355.

#### PRODUCTION OF DYES IN THE UNITED STATES

THE United States Tariff Commission reports that the production of dyes in this country declined last year far below that of the previous year, ascribing as the reasons the loss of much of the country's export trade, the general business depression, and the carrying over of large stocks from the previous year.

The commission states that the progress made during the year includes the production in the United States for the first time of a number of dyes of greater complexity and more specialized application. Many of these dyes, which are of secondary importance from the point of view of quantity consumed, are essential in the dyeing and printing of numerous fabrics. These additions to our list of dyes represent an added step toward a well-rounded coal tar chemical industry. The development of many of these new products is a highly technical achievement.

There were 201 firms engaged in the manufacture of coal tar derivatives in 1921. The output of dyes by seventy-four firms exceeded 39,000,000 pounds, a decrease of 56 per cent. from that of 1920. The sales in 1921 exceeded 47,000,000 pounds, valued at more than \$39,000,000, and exceeded production by 22 per cent., indicating that a part of the domestic consumption for that year was supplied from the large stocks carried over from the previous year's abnormally high production. The sales

of dyes for 1921 exceeded the imports of 1914, when the United States imported nearly 46,000,000 pounds and produced over 6,000,000 pounds of dyes from German imported intermediates.

The average price of all dyes in 1921 was 83 cents per pound, compared with a value of \$1.08 per pound in 1920 and a value of \$1.26 for 1917. The total quantity of dyes imported in 1921 was 3,914,036 pounds, valued at \$5,155,779, or \$1.32 per pound, compared with 3,402,582 pounds, valued at \$5,763,437 in the previous year. The imports of 1921 represent 10 per cent. of the production and about 8 per cent. of the total dye sales during the year. Germany supplied about 48 per cent. of the total dyes imported during 1921; Switzerland, 41 per cent.; England, 7 per cent., and all other countries, 4 per cent.

Exports of domestic dyes for 1921 show a decrease of nearly 79 per cent., compared with those for the previous year. The value of our exports for 1921 was \$6,270,139, compared with \$29,823,591 in 1920. The total exports of dyes for 1921 were less than for the year 1917, when the first considerable expansion of the domestic dye industry from pre-war conditions occurred.

The total production of synthetic organic chemicals other than those derived from coal tar, which are used as medicinals, perfumes, flavoring ingredients, solvents and in numerous industrial processes, was 21,545,186 pounds; the sales amounted to 16,761,096 pounds, valued at \$13,746,235. The development of this industry in the United States has been similar to that of the dye industry, as our supply of synthetic organic chemicals was controlled primarily by Germany prior to the war.

#### FELLOWSHIPS FOR MEDICAL RESEARCH

It is stated in *Nature* that Junior Beit Memorial Fellowships of the annual value of £350, and tenable for three years, have been awarded by the trustees to the following, the subject and place of research being given after each: Mr. E. B. Verney: The physiology and pathology of urinary secretion, at the Institute of Physiology, University College, London; Professor F. Cook: A study of the neuro-muscular

apparatus of the uterus, at Guy's Hospital; Dr. J. L. Rosedale: The chemistry of normal and pathological tissue with special reference to the protein and nuclein constituents, at St. Thomas's Hospital Medical School, London; Mr. R. Hilton: The study of the blood gases in various stages of pulmonary collapse produced by artificial pneumothorax; the condition of the circulation in the collapsed lung, at the Lænnec Hospital, Paris, and at St. Bartholomew's Hospital; Mr. A. St. G. J. M'C. Huggett: The investigation of the function of the placenta in relation to the passage of gases and other substances from the mother to the foetus and the cause of foetal apnoea, at the Sherrington School of Physiology, St. Thomas's Hospital, and at the Brown Animal Institution at Vauxhall; and Mr. V. D. Allison: The investigation of the nature and properties of a hitherto undescribed substance which has a strong bactericidal, bacteriolytic and bacterio-inhibitory action—named lysozyme, at the Institute of Pathology and Research, St. Mary's Hospital. Fourth year fellowships of the annual value of £400 have been awarded to Dr. D. Keilin: The life-histories of protozoa pathogenic to insects; the life-history, anatomy and physiology of insects, at the Monteno Institute for Research in Parasitology, Cambridge; and Mr. I. de B. Daly: Auriculo-ventricular block, at the Institute of Physiology, University College, London. The trustees of the Beit Scientific Research Fellowships have re-elected Mr. H. L. Riley and Mr. W. A. P. Challenor to fellowships for the year commencing September, 1922, and elected Mr. H. W. Buston to a fellowship for the same period. All the fellows are required to carry out their research at the Imperial College of Science and Technology. Mr. Riley will continue his research on "The Atomic Weight of Silver, and the Dielectric Constants of Dry Gases" in the chemistry department, and Mr. Challenor will continue his work on "Ring Formation in the Aromatic and Aliphatic Series of Organic Chemistry" in the chemistry department, both under the direction of Professor H. B. Baker. Mr. Buston will carry out investigations on "Nitrogenous Metabolism in Plants" in the biochem-

istry department under the supervision of Professor J. B. Farmer.

### THE SECOND NATIONAL HIGHWAY CONFERENCE

PLANS for a second national conference for the study of highway engineering and highway transport education are being prepared by the Highway Education Board, of which Dr. John J. Tigert, U. S. commissioner of education, is chairman. Teachers of highway engineering and highway transport, officials in charge of highway construction programs, members of the automotive industry and kindred fields, together with representatives from other countries, are being invited to attend. The conference will be held in Washington from October 26 to 28 inclusive, and, according to the tentative program, this period will be devoted to the intensive study of highway and engineering problems.

According to a statement of the program committee, the object of the conference is "To review the field of highway engineering and highway transport education in the light of expanding state and federal highway programs and the rapidly increasing social and commercial use of the highways; to discuss general and special courses in undergraduate and graduate curricula; and to exchange views on educational trends arising from these developments in the national transportation system."

Members of the program committee charged with the duty of arranging an adequate program are: Professor T. R. Agg, professor of highway engineering, Iowa State College; Professor Arthur H. Blanchard, professor of civil engineering, University of Michigan; Professor C. J. Tilden, professor of engineering mechanics, Yale University; Professor Lewis W. McIntyre, professor of civil engineering, University of Pittsburgh; H. G. Shirley, chairman of the Virginia State Highway Commission, Richmond, and Dr. Walton C. John, U. S. Bureau of Education, Washington, D. C., chairman.

Seven principal committees will function as the chief activities of the conference, but a program of unusual and exceptional merit, it is said, is being arranged. Tentatively the com-